CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

CLEANUP AND ABATEMENT ORDER NO. 00-107 36-AA-0057
AGAINST
COUNTY OF SAN BERNARDINO, OPERATOR
UNITED STATES DEPARTMENT OF INTERIOR - BUREAU OF LAND MANAGEMENT, OWNER
LANDERS WASTE MANAGEMENT FACILITY
CLASS III LANDFILL - CLASS II SURFACE IMPOUNDMENTS
Northwest of Joshua Tree - San Bernardino County

The Executive Officer of the California Regional Water Quality Control Board, Colorado River Basin Region, finds that:

1. The County of San Bernardino, Waste System Division, known as the County of San Bernardino Solid Waste Management Department (hereinafter referred to as the discharger), 222 West Hospitality Lane, Second Floor, San Bernardino, California 92415-0017, administers the operation of the Landers Waste Management Facility (WMF) (hereinafter referred to as the Landfill) located approximately 10 miles northeast of Yucca Valley and four miles east of Highway 247 in the SE ¼ of Section 20, SW ¼ of Section 21, NW ¼ of Section 28 and NE ¼ of Section 29, T2N, R6E, SBB&M in San Bernardino County, California.

2. The United States Department of Interior, Bureau of Land Management (hereinafter also referred to as the discharger) with the physical address of 63500 Garnet Avenue, North Palm Springs, California 92258, and mailing address of P.O. Box 2000, North Palm Springs, California 92258, is the lessor and the owner of the property known as the Landers Landfill.

3. The Landfill is regulated by waste discharge requirements prescribed in Board Order No. 98-003, adopted on January 8, 1998, and Board Order No. 93-071, adopted September 15, 1993. The Landfill has been in operation since 1965.

4. The Landfill is located on a 640 acre parcel. The Landers Waste Management Facility (WMF) includes three clean closed and two active septage disposal areas in addition to one active and one inactive landfill.

5. The Landfill is unlined, has no leachate collection and removal system (LCRS), and receives approximately 381 tons-per-day (tpd) of Class III non-hazardous and inert waste, as defined by California Code of Regulations, Title 27. Specifically, wastes include dead animals, tires, construction, demolition, agricultural, industrial and mixed municipal wastes. Approximately 1.1 million cubic yards (yd^3) of refuse and cover have been placed in the active landfill. It has a total capacity of approximately 3 million yd^3, and is scheduled to close in the year 2008.

6. Two new Class II surface impoundments (West and East Pond) were constructed on a three-acre portion of the WMF in October 1995. These ponds are equipped with liners and LCRS, and designed and constructed in accordance with Title 27 criteria. These surface impoundments receive approximately 96 tons/day of grease trap, septic tank, and chemical toilet wastes. Prior to the construction of these lined surface impoundments, liquid wastes were discharged from 1965 to 1995 to unlined septage impoundments without an LCRS. Dried wastes were excavated from the unlined surface impoundments, and disposed at Waste System Division's Barstow Sanitary Landfill.

7. The Landfill is located in the west-central portion of the Mojave Desert geomorphic province of California. This geomorphic province consists of a wedge-shaped fault block, referred to as the Mojave Block. The site is near the apex of a large alluvial fan that extends from the foothills across the Twentynine Palms U.S. Marine Corps Base. The alluvial fan is approximately 21 miles long and 198 miles wide. In the vicinity of the site, the slope of the alluvial fan is approximately 130 feet per mile.

8. Bedrock beneath the site is Mesozoic in age and is essentially gneissic metamorphosed sediments and intrusive biotite quartz monzonite. The gneissic bedrock is fractured and jointed, with preferential weathering. Bedrock beneath the site is not only fractured and jointed, but to a lesser degree, faulted as well.

9. The alluvium and weathered bedrock are unsaturated at the site. Groundwater beneath the site occurs only in deeper fracture zones within the gneissic and granitic bedrock. Based on monitoring wells within the study area, the top of saturated bedrock is encountered at depths of approximately 217 to 731 feet below ground surface.

10. The dischargers have constructed a groundwater contour map from the most recent vertically corrected groundwater elevation measurements. The WMF groundwater flow regime is complex.

11. Geologic investigations performed by the discharger indicate an inferred fault barrier corresponding to the Nason-Dixon fault may extend through the middle of the active landfill. The barrier is suggested by the differences in groundwater elevations between monitoring wells L-3 and L-14, and wells L-1, L-13, and L-20, and the resulting groundwater elevation anomalies.

12. On July 5, 1990, the dischargers submitted a Solid Waste Assessment Test (SWAT) report for the Landfill in compliance with Section 13273, Article 4, Chapter 4, Division 7 of the California Water Code.

13. The monitoring system at the Landers Landfill consists of 18 groundwater monitoring wells, including three consistently dry monitoring wells (L-3a, L-11 & L-12). Two other monitoring wells L-15 (dry since June 1997) & L-16 (dry since March 2000) have since gone dry. As part of the SWAT investigation, the dischargers constructed the following groundwater monitoring wells: L-1, L-3, L-6, L-7, and L-8. As part of the Evaluation Monitoring Program (EMP), in 1995-96, the following wells: L-9, L-10, L-11, L-12, L-13, L-14, L-15, and L-16 were installed.

14. The SWAT investigation and the groundwater monitoring data, submitted quarterly in compliance with Monitoring and Reporting Program No. 91-028 (applicable to this Landfill prior to January 8, 1998 when Board Order 98-003 was adopted), indicate that volatile organic compounds (VOCs) are leaking from the Landfill into the groundwater.

15. Groundwater samples from monitoring wells installed for the SWAT were analyzed on a quarterly basis from February 1988 to September 1997 (five wells total, 34 discrete sampling events). A variety of Constituents of Concern (COCs) are close to or have exceeded the State Drinking Water Standards at least once in each quarterly sampling event. Even though the constituents were found in different wells, a listing of the highest concentration of these constituents is given below:

Constituent of Concern	Maximum Well Conc. (µg/L)[1]	CA Primary Max. Contaminant Level (µg/L)	CA Toxic Drinking Water Action Level (µg/L)	Well No.
1,1-Dichloroethane	11.2[2]	5	-	L-3
Benzene	1.4[2]	1	-	L-7
Bis (2-Ethylhexy)phthalate	33[2]	4	4	L-8
Tetrachloroethene	4.9	5	-	L-3
Trichloroethene	2.5	5	-	L-3
Dichlorodifluoromethane	14	-	1,000[3]	L-3
1,4-Dichlorobenzene	0.5	5	-	L-3
1,1-Dichloroethene	1.2	6	-	L-3
Bromomethane	0.8	-	10	L-7
1,1,1-Trichloroethane	1.4	200	-	L-8
Chloroethane	0.8	-	-	L-3
Chloroform	0.2	100	-	L-3
Toluene	13	150	1,000	L-8
Trichlorofluoromethane	3.6	150	-	L-3
Nitrate (As N)	74,000[2]	45,000	-	L-6
Chromium, Total	310[2]	50	-	L-1
Nitrate/Nitrite	20,400[2]	10,000	-	L-6
Selenium	10[2]	10	-	L-8
Zinc	1,020	5,000[4]	-	L-1

16. Groundwater samples from monitoring wells installed for the EMP were also analyzed on a quarterly basis from July 1995 to September 1997 (eight wells, 6-8 sampling events). A variety of constituents of concern were found in these monitoring wells. The constituents include the following:

Constituent of Concern	Maximum Well Conc. (µg/L)[1]	CA Primary Max. Contaminant Level (µg/L)	CA Toxic Drinking Water Action Level (µg/L)	Well No.
1,4-Dichlorobenzene	11.1[2]	5	-	L-16
Bis (2-Ethylhexy) phthalate	3.3	4	4	L-13
Chlorobenzene	38.2	-	-	L-16
Benzene	0.7	1	-	L-16
Toluene	3	150	1,000	L-10
1,1-Dichloroethane	1	5	-	L-14
1,1-Dichloroethene	0.6	6	-	L-14
1,2-Dichlorobenzene	3	600[3]	130	L-16
Total Xylenes	0.6	1,750	-	L-14
1,1,1-Trichloroethane	0.6	200	-	L-14
Dichlorodifluoromethane	1.2	-	1,000[3]	L-14
Nitrate (As N)	103,000[2]	45,000	-	L-9
Chloride	208,000	-	-	L-9
Selenium	7	10	-	L-16
Total Dissolved Solids (TDS)[5]	1,550 mg/L	-	-	L-9

[1] µg/L – microgram-per-Liter

[2] Indicates constituents concentration exceeded or equaled regulatory standard in at least one groundwater monitoring well sample.

[3] California Taste and Odor Drinking Water Action Level

[4] California Secondary Maximum Contaminant Level

[5] The TDS average for the groundwater is in the range of 450 mg/L.

17. On December 6, 1991, the California Regional Water Quality Control Board, Colorado River Basin Region (Regional Board) issued Cleanup and Abatement Order (CAO) No. 91-062 to the County of San Bernardino for a release of hazardous constituents to the groundwater at the Landfill.

18. The dischargers have submitted and performed the following in compliance with CAO No. 91-062, and as part of the EMP:

    a. The discharger submitted a preliminary Evaluation Monitoring Program (EMP) Workplan in April 1992, a final EMP Workplan on April 15, 1993, and an EMP Investigation Report in May 1996.

    b. The discharger has installed, as part of the EMP program, eight new groundwater monitoring wells at the site.

19. This CAO revises CAO No. 98-056.

20. Since the issuance of CAO No. 98-056 the discharger has conducted the following:

    i. Submittal of quarterly groundwater monitoring reports from the groundwater monitoring wells.

    ii. Hydrogeologic and Geologic characterization for the proposed Landfill Expansion.

    iii. Natural Attenuation Studies of Inorganic Constituents, old septage disposal area.

    iv. Submittal of Summary Report and response to Cleanup and Abatement Order No. 98-056.

21. In June 1998 the discharger clean-closed the old surface impoundments identified as sources of groundwater pollution. The groundwater monitoring reports indicate water quality remains stable at well No. L-9, near the center of the groundwater mound. Groundwater in well No. L-16 indicates a decrease in nitrate, total dissolved solids (TDS), and chlorobenzene.

22. The Discharger reports their natural attenuation – dilution model indicates natural attenuation beneath the clean closed surface impoundments will occur during the next 5 to 15 years.

23. In December 1999, the discharger initiated a one year monitoring program to assess the Landfill gas migration as the cause of volatile organic compound (VOC) impacts beneath the Landfill. The program consists of soil-pore gas sampling at six points near the Landfill perimeter.

24. The discharger reports that groundwater samples from monitoring wells L-1, L-8, L-10, and L-14 shows sporadic detection of VOCs. The concentration of these VOCs are 1.2 µg/L or less.

25. The hazardous constituents stated in Findings No. 15 and 16 indicate a release from the municipal solid waste landfill, and/or the pre-existing unlined liquid waste evaporation ponds.

26. The Water Quality Control Plan for the Colorado River Basin Region (Basin Plan) was adopted on November 17, 1993, and designates the beneficial uses of ground and surface waters in this Region.

27. The Basin Plan indicates that the landfill is located in the Emerson Hydrologic Unit.

28. The beneficial uses of groundwaters in the Emerson Hydrologic Unit are:

    a. Municipal supply (MUN)
    b. Agricultural supply (AGR)

29. Section 13304(a) of the California Water Code states, in part:

    "Any person...who has caused or permitted...any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the Regional Board clean up such waste or abate the effects thereof, or, in case of threatened pollution or nuisance, take other necessary remedial action..."

30. Section 13267 of the California Water Code states, in part:

    "The Regional Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste...shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Boards requires..."

31. The discharge of hazardous constituents described in Finding No. 15 and 16 has caused pollution of the groundwater beneath the Landfill.

32. Pursuant to Section 13304 of the California Water Code, the dischargers are hereby notified that the Board is entitled to, and may seek, reimbursement for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste to water, and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action required by this Cleanup and Abatement Order. The dischargers shall reimburse the Regional Board upon receipt of a billing statement for these costs.

33. This enforcement action is being taken for the protection of the environment and is therefore exempt from the California Environmental Quality Act pursuant to Section 15321, Chapter 3, Title 14 of the California Code of Regulations.

IT IS HEREBY ORDERED, Cleanup and Abatement Order No. 98-056 is rescinded and that pursuant to Sections 13304 and 13267 of Division 7 of the California Water Code, the County of San Bernardino shall prepare reports, and cleanup or abate the effect of the release of hazardous constituents described in Finding No. 15 and 16 by complying with the following:

1. Submit a monthly progress report to the Regional Board's Executive Officer that details the progress being made toward implementation of Corrective Action Program (CAP) to remediate all soil and groundwater pollution.

2. March 31, 2001 -

    a) Submit a proposed CAP to remediate the impact of chloride, nitrate, and TDS in the groundwater.

    b) Complete the soil-pore gas monitoring program through the fourth quarter 2000 to assess landfill gas impacts near the Landfill and submit a supplemental report.

3. June 30, 2001 -

   a) Implement the CAP for chloride, nitrate, and TDS concentration reduction.

   b) Complete and submit an Engineering Feasability Study (EFS) report. The EFS report should be an evaluation of the need for corrective action and the effectiveness of installing a landfill gas control system to mitigate the landfill gas impacts to groundwater.

4. August 31, 2001 - Submit a proposed CAP to implement a corrective action program for VOC impacts at groundwater monitoring wells, based on the results of the EFS.

5. January 15, 2002 - Implement the CAP to remediate all soil and groundwater pollution. Cleanup efforts shall continue until such time as the Regional Board's Executive Officer considers the WMF to be remediated to the fullest possible extent, based on the available technology.

6. Submit quarterly report to the Regional Board's Executive Officer showing successful attainment of the performance objectives described in Federal Resources Conservation Recovery Act (RCRA), Subtitle D, Part 258 et seq, and Combined SWRCB/CIWMB Regulations Division2, Title 27.

All technical and monitoring reports required in conjunction with this Cleanup and Abatement Order are required pursuant to Section 13267 of the California Water Code, and shall include a statement by the dischargers, or an authorized representative of the dischargers, certifying under the penalty of perjury under the laws of the State of California, that the report is true, complete and accurate.

Phil Gruenberg
PHIL GRUENBERG

9-27-00
DATE